

2.4.4.3.1.1.2 Verification of Dynamic Range (subparagraphs 2.2.4.3.1.1.b, 2.2.4.3.1.1.c)**Purpose/Introduction:**

This test verifies that the ADS-B receiver can detect and decode valid ADS-B messages over the equipment's specified dynamic range.

Input:**Equipment:**

Provide a method of providing the UUT with:

Any Valid ADS-B Message having:

"DF"	=	17
"CA"	=	0
"AA"	=	Any discrete address
Message Rate	=	50 Hz
Frequency	=	1090 MHz
Power	=	-68 dBm

Measurement Procedure:

The ADS-B receiver power levels specified in this procedure are relative to the loss at the RF message source end of the transmission line used to interface the RF message source to the UUT receiver input port. For each ADS-B equipage class, the specified power level shall be adjusted to compensate for the maximum line loss for which the UUT receiver has been designed. For example, if the line loss is 3 dB, then each of the RF message power levels specified in the test procedures shall be lowered by 3 dB.

Step 1: Apply ADS-B Input Messages

Apply **Input** at the receiver input port.

Step 2: Establish UUT Receiver MTL

Decrease the input power level and determine the minimum RF signal level required to produce 90 percent ADS-B message reception rate by the UUT receiver.

This value plus the loss line value represents the measured MTL of the UUT ADS-B receiver.

Step 3: Verify UUT Receiver Dynamic Range

Increase the input signal power level to MTL + 3 dB.

Verify that the receiver properly detects and decodes at least 99% of all ADS-B Messages received.

Increase the input signal power level in 10 dB steps up to a signal level of -21 dBm.

At each step, verify that the receiver properly detects and decodes at least 99% of all ADS-B Messages received.

Step 4: Verify Class A3 UUT Receiver Performance

Decrease the input signal power level to -87 dBm. Verify that the receiver properly detects and decodes at least 15% of all ADS-B Messages input.

Step 5: Repeat on all Applicable Receiver Input Ports

Repeat Steps 1 through 4 on all other applicable receiver RF input ports of the UUT.

2.4.4.3.1.2 Verification of Re-Triggerable Capability (subparagraph 2.2.4.3.1.2)

Purpose/Introduction:

The following procedures verify the capability of the Stand alone ADS-B receiver to detect overlapping ADS-B broadcast messages.

Input:

Equipment:

Provide a method of supplying the UUT with:

Any Valid ADS-B Message having:

“DF”	=	17
“CA”	=	0
“AA”	=	Any discrete address
Message Rate	=	50 Hz
Frequency	=	1090 MHz
Power	=	-50 dBm

Followed by a second Valid Mode S Extended Squitter:

“DF”	=	17
“CA”	=	0
“AA”	=	Any discrete address different from the first one
Message Rate	=	50 Hz
Frequency	=	1090 MHz
Power	=	-44 dBm

Starting 12.0 +/- 1.0 μ sec later than the leading edge of the first ADS-B Message.

Measurement Procedure:

The ADS-B receiver power levels specified in this procedure are relative to the loss at the RF message source end of the transmission line used to interface the RF message